

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions of claims in the application:

Claim 1 (Original) A compact, high-efficiency, high-power, solid state light source, comprising:

a high-power solid state light-emitting device; and

a light guide having a proximal light-receiving end held proximate the light-emitting device, and a distal light-transmitting end spaced farther from the light-emitting device.

Claim 2 (Original) The light source of claim 1, wherein the light-emitting device comprises a light-emitting diode (LED).

Claim 3 (Original) The light source of claim 2, wherein the LED emits white light.

Claim 4 (Original) The light source of claim 3, wherein the LED emits a broadband visible light including at least the 470-700nm wavelength band.

Claim 5 (Original) The light source of claim 2, wherein the LED has a light emitting area that is about 1mm square.

Claim 6 (Original) The light source of claim 2, wherein the LED comprises a white light emitting substance that emits when excited by the diode.

Claim 7 (Original) The light source of claim 2, wherein the LED draws up to 5W of power.

Claim 8 (Original) The light source of claim 1, wherein the light guide comprises a bundle of a large number of small diameter individual fibers.

Claim 9 (Original) The light source of claim 8, wherein the fibers have diameters of about 30-50 micrometers.

Claim 10 (Original) The light source of claim 8, wherein the fibers are made of glass or plastic.

Claim 11 (Original) The light source of claim 8, further comprising a ferrule that surrounds the fiber bundle.

Claim 12 (Original) The light source of claim 11, wherein the ferrule is located close to but not at the proximal end of the fiber bundle.

Claim 13 (Original) The light source of claim 1, wherein the light-emitting device defines a substantially flat light-emitting surface.

Claim 14 (Original) The light source of claim 13, wherein the proximal end of the light guide is essentially flat and is located directly on the light-emitting surface of the light-emitting device.

Claim 15 (Original) The light source of claim 2, further comprising a light-conducting material between the light-emitting device and the proximal end of the light guide, the material having a refractive index between that of the light-emitting surface and that of the light guide.

Claim 16 (Original) The light source of claim 15, wherein the light-conducting material comprises a silicone-based device encapsulent material.

Claim 17 (Original) The light source of claim 15, wherein the light-conducting material comprises an index-matching gel.

Claim 18 (Original) The light source of claim 15, further comprising a structure that at least partially contains the material.

Claim 19 (Original) The light source of claim 18, wherein the structure comprises at least part of the dome lens that surrounds the material.

Claim 20 (Original) The light source of claim 19, wherein the dome lens is configured to have an essentially flat surface against which the proximal end of the light guide is held.

Claim 21 (Original) The light source of claim 1, wherein the light guide comprises a single glass or plastic fiber.

Claim 22 (Original) The light source of claim 1, wherein the light guide comprises a fiber optic or solid taper coupled to a large number of small diameter light guide fibers.

Claim 23 (Original) The light source of claim 1 located within an endoscope.

Claim 24 (Original) The light source of claim 1 configured as a self-contained source of illumination further comprising a battery power source.

Claim 25 (Original) A compact, high-efficiency, high-power, solid state light source, comprising:

 a high-power solid state white light-emitting diode (LED);

 a light guide comprising a bundle of a large number of small diameter fibers, the bundle having an essentially flat proximal light-receiving end proximate the light-emitting device, and a distal light-transmitting end spaced farther from the light-emitting device; and

 a mechanical light guide fixing device coupled to the light guide near its proximal end, to hold the proximal end of the light guide in position directly against the light-emitting surface of the LED.

Claim 26 (New) A system for use in an endoscopic application, the system comprising:

 an endoscope;

 a high-power solid state light-emitting device incorporated within a handle of the endoscope; and

 a light guide having a proximal light-receiving end held proximate the high-power solid state light-emitting device, and a distal light-transmitting end spaced farther from the high-power solid state light-emitting device.

Claim 27 (New) The system of claim 26 further comprising:
a battery for powering the high-power solid state light emitting device, the battery being incorporated within the handle of the endoscope.

Claim 28 (New) The system of claim 26, wherein the proximal light-receiving end of the light guide is held directly against the high-power solid state light-emitting device.

Claim 29 (New) A compact solid state light source for an endoscope, the compact solid state light source comprising:

 a high-power solid state light-emitting device; and
 a light guide having a proximal light-receiving end held proximate the high-power solid state light-emitting device, and a distal light-transmitting end spaced farther from the high-power solid state light-emitting device,
 wherein light emitted from the high-power solid state light-emitting device is transmitted to the light guide without the use of auxiliary optical components.

Claim 30 (New) A solid state illumination system comprising:

 a high-power solid state light- emitting device; and
 a light guide having a proximal light-receiving end coupled to the high-power solid state light-emitting device without the use of mirrors, lenses, or other optical components, and a distal light transmitting end spaced farther from the high-power solid state light-emitting device.

Claim 31 (New) The solid state illumination system of claim 30, wherein the high-power solid state light-emitting device is incorporated within a handle of an endoscope.